SUPPORTING TECHNICAL DOCUMENT FOR PM_{10} EXCURSIONS IN SALMON, IDAHO DURING THE SUMMER OF 2000

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INTRODUCTION:

Poor air quality may occur at any time throughout the year and may be created by both natural and anthropogenic means. Although both may have significant impacts, natural sources can be more devastating due to the uncontrollable and sometimes extended duration of the events. During the summer of 2000, the United States experienced one of the most severe wild land fire seasons in its history. With La Nina helping to create an abnormally hot and dry weather pattern, fuel moisture in the vegetation dropped to record low levels. Drought conditions and extreme fire danger indices were reported in many states, including Idaho. This pattern lasted through early September with high temperatures, little or no precipitation and strong winds bringing about intense fire activity. As the number and size of the fires grew, so did their impact upon the air quality. By mid August, smoke had begun to filter into many valley locations, creating potentially hazardous conditions. Although a number of areas were impacted by the fires, two of the counties hardest hit in Idaho were Custer and Lemhi.

By the second week in August, air quality within the small community of Salmon, Idaho had reached unhealthful to potentially hazardous levels due to smoke from a number of fires burning in the Central Idaho Mountains. The most significant of these was the Clear Creek Fire located about 30 miles west of the city. By late July, this fire had become the largest in the nation and as seen in Photographs 1 and 2, generated a significant amount of smoke and ash. As more particulate matter was released into the atmosphere, air quality conditions continued to deteriorate. This increase was further enhanced by a wave of dry thunderstorms that moved across the region. The strong downdrafts associated with these storms amplified activity in existing fires and helped to create new burns in the extremely dry environment.

Photograph 1. Clear Creek Fire on July 27, 2000 as seen from Deep Creek Road.

Photograph 2. Smoke plume from the Clear Creek Fire, August 7, 2000.

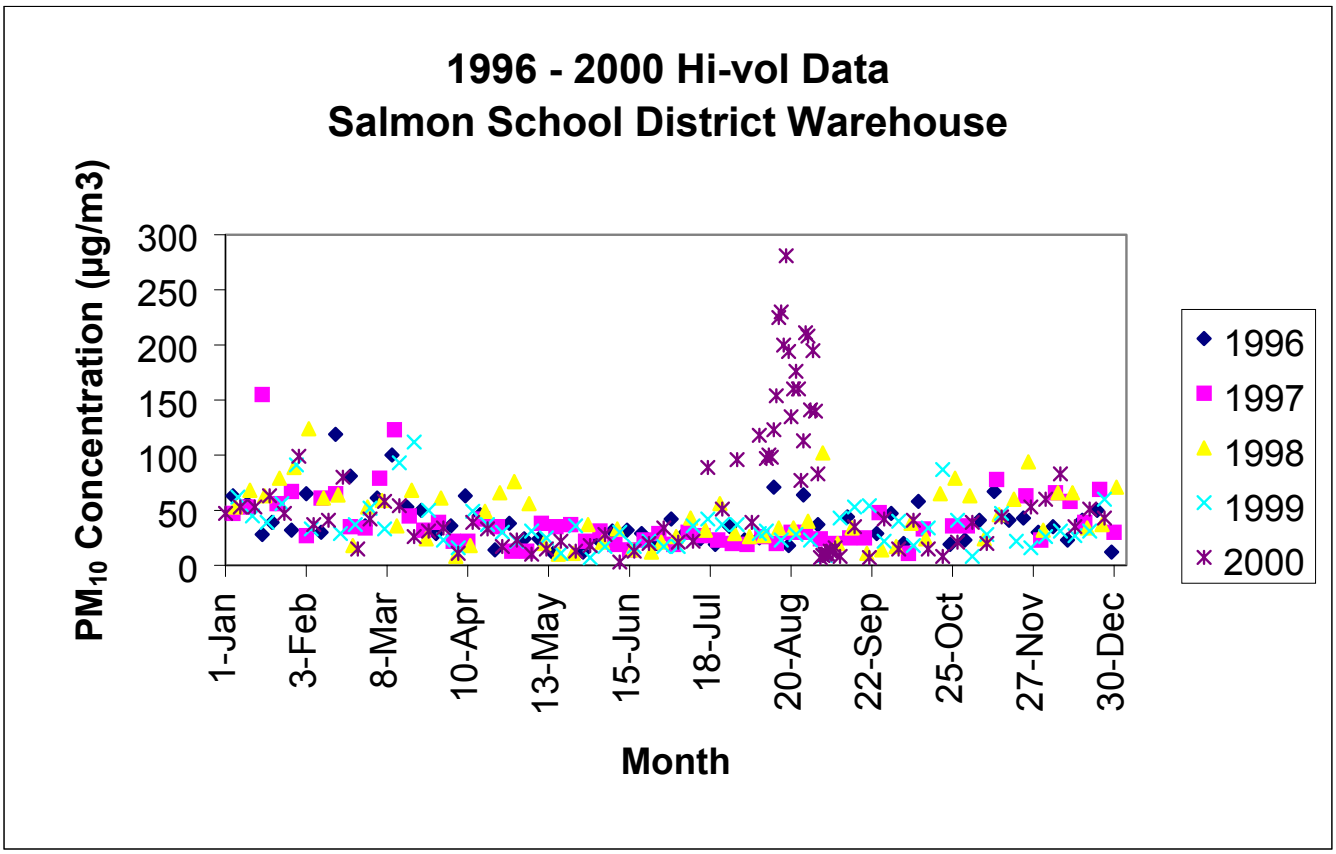
An evaluation of the data from a high volume (hi-vol) sampler located at the Salmon School District Warehouse, showed numerous excursions of the PM_{10} National Ambient Air Quality Standard (NAAQS) during this period. The first of these was recorded on August 15, 2000, with a 24-hour concentration of 225 $\mu g/m^3$. This was an increase of 71 $\mu g/m^3$ from the previous day's value. With little relief in sight from the intense fire activity, levels remained elevated in the Salmon area until early the next month. By August 18th, a maximum of 281 $\mu g/m^3$ had been reached. By the end of August, a total of 11 excursions of the PM_{10} NAAQS had been measured at this site. As Labor Day weekend approached, a change in the weather pattern brought cooler temperatures, higher humidity, and much needed rain showers to the Central Idaho Mountains. This, in turn, helped to bring improved air quality conditions to the Salmon area.

PURPOSE:

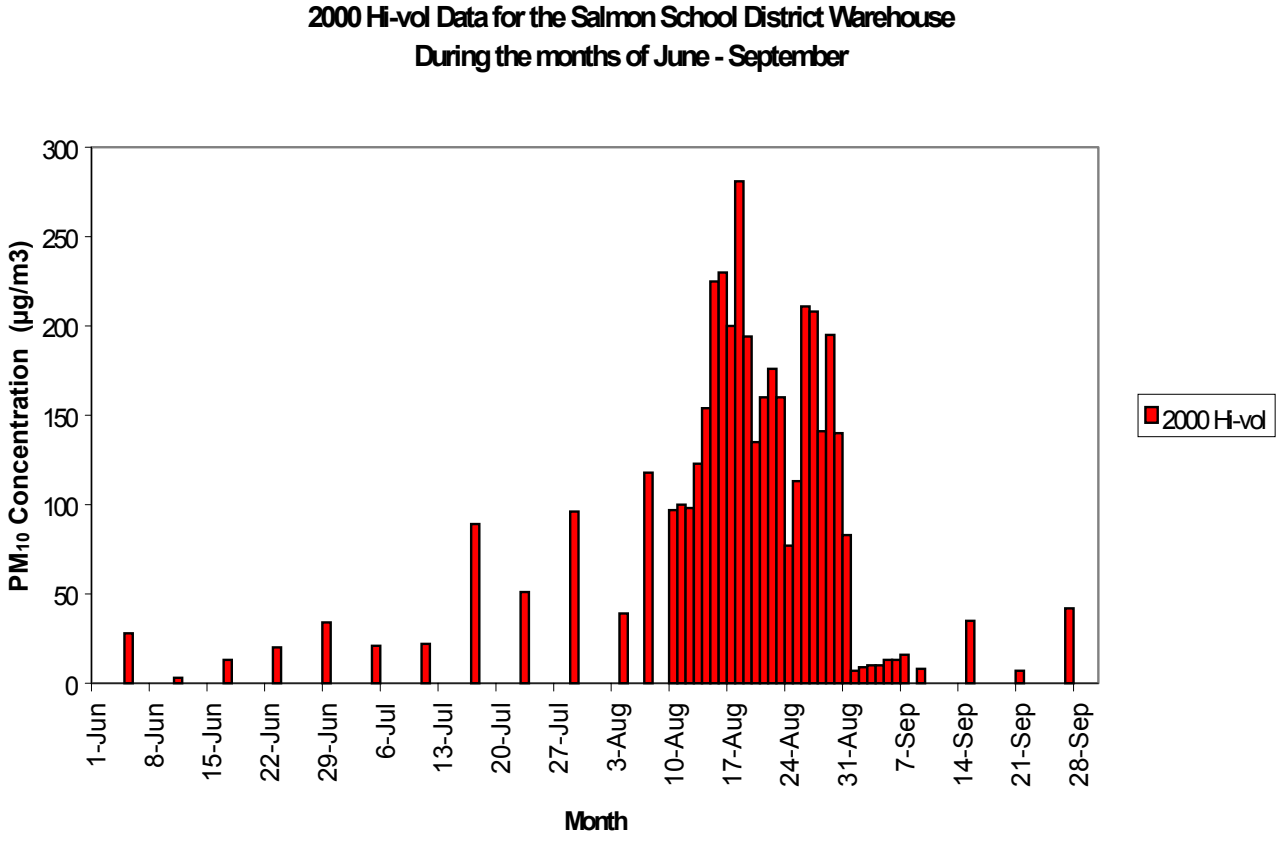
Salmon is located in Lemhi Valley, near the point where the Lemhi and Salmon Rivers meet. The complexity of the surrounding terrain and its effects on the weather can have a significant impact on the dispersion and buildup of air pollutants. Wintertime inversions, for example, may become enhanced not only by the movement of a strong high pressure system over the region, but by the more localized effects of cold drainage

flow into the valleys at night. As this cold air becomes trapped in the lower layers of the atmosphere, it can lead to reduced mixing and poor dispersion. This may, in turn, contribute toward a significant buildup in pollutants as more and more matter is released into the stable air. This is especially true as the use of wood stoves and fireplaces increase.

Although this process has been known to play an important role in determining air quality trends within the Salmon area, an evaluation of five year's worth of hi-vol data from the School District Warehouse has shown only one other excursion of the PM_{10} standard in the time period before the 2000 wildfires. As illustrated in Graph 1, this occurred back in January of 1997 when cold, stable air produced limited mixing in the valley. By January 16, 1997, the 24-hour PM_{10} concentration had reached 155 $\mu g/m^3$. Although levels had been slightly elevated earlier in the month, it is believed that re-entrained road dust from street sweeping activities and increased wood smoke may have contributed to the problem. In contrast to this earlier event, and as further illustrated in Graphs 1 and 2, air quality impacts during the 2000 wildfire season were significantly more pronounced.



Graph 1. 24-hour PM_{10} averages from the Salmon School District Warehouse hi-vol during the period from January of 1996 through December of 2000.

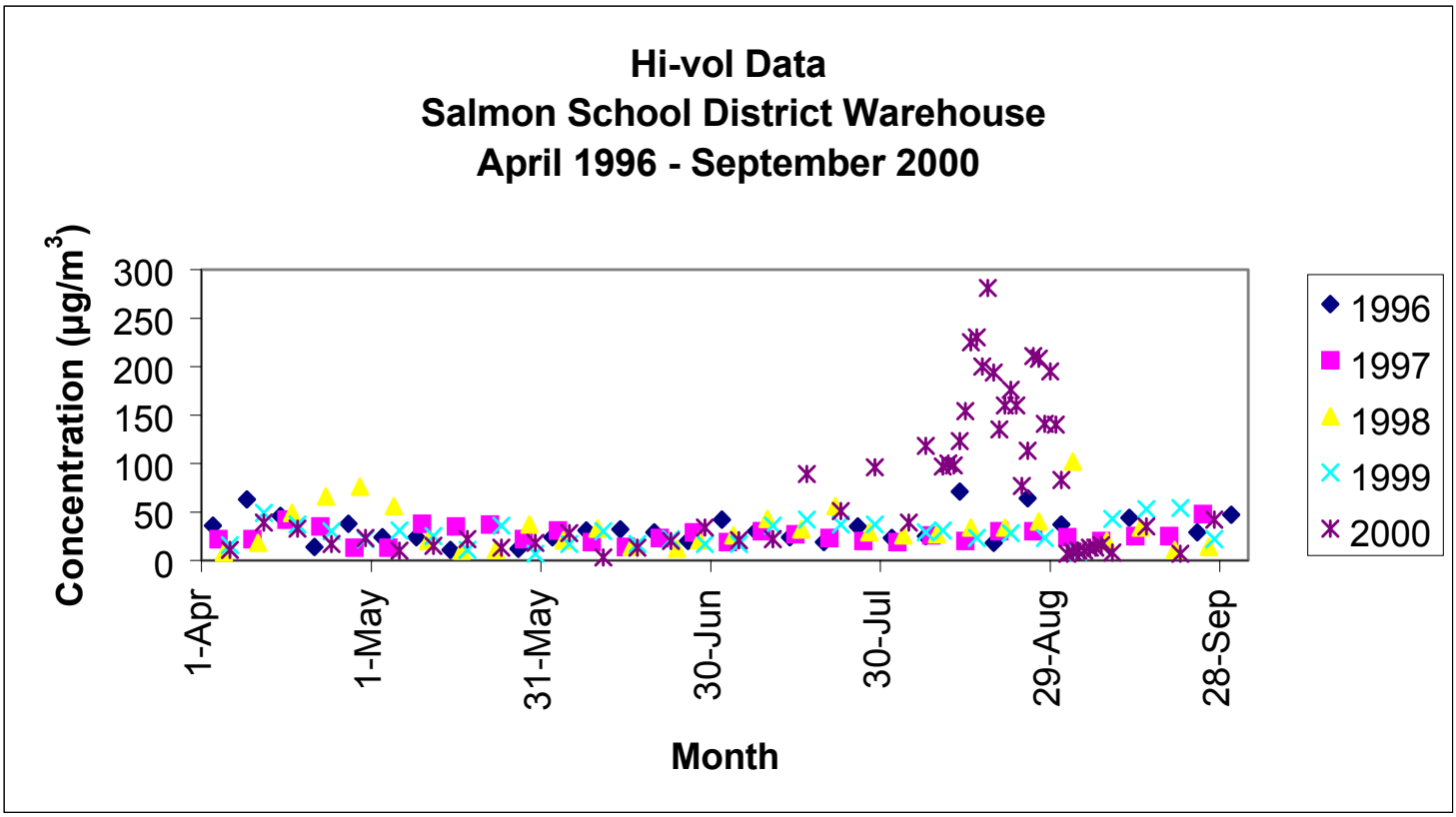


Graph 2. Salmon School District Warehouse hi-vol data for the period from June 2000 to September 2000.

Up until the summer of 2000, PM_{10} levels in Salmon had been on a downward trend. There were numerous times, in fact, when levels were lower than they had been in past years. This might be attributed to a change in particulate sources, e.g., the closing of the Salmon Intermountain Sawmill back in the early nineties. In addition, Graph 3 shows that in the months leading up to the event values were low, with 24-hour concentrations in the mid-teens to upper-thirties. By the middle of the summer, however, this trend started to change. Particulate levels began to rise as fire activity intensified within the Central Idaho Mountains. By late July, PM_{10} concentrations were starting to reflect the increase in smoke as the fires raged out of control. As further illustrated in Graph 2, it wasn't long before levels reached above 100 $\mu g/m^3$.

Although this increase was modified somewhat by afternoon winds, the enhanced mixing was not strong enough to counterbalance the influx of smoke into the region from the nearby fires. At night, after the winds had died down, cool stable air settled into the valley. This helped to enhance the strength of early morning inversions, trapping smoke in preferred locations along the Salmon River. As a result of these diurnal patterns, PM_{10} concentrations in the small Salmon community remained elevated for over a two-week period. By the end of August, a total of 11 excursions of the 24-hour PM_{10} standard had been recorded. In addition, more than half of these violations were greater than or equal

to 200 µg/m^3. As seen in Graph 1, it wasn't until the summer of 2000 that concentrations of this magnitude were measured at this site. Based upon this and the strong correlation between the time of intense fire activity and the measured excursions, it is believed that these elevated values should be flagged under the provisions set forth in the U.S. Environmental Protection Agency's (EPA) Natural Event Policy.



Graph 3. 24-hour PM_{10} averages from the Salmon School District Warehouse hi-vol during the period from April 1996 through September of 2000.

DESCRIPTION OF THE EVENT:

During the spring and summer of 2000, the nation experienced a very intense and widespread fire season. Under the influence of an exceptionally hot and dry weather pattern, fuel moisture was at a record low. Long term weather forecasts showed no relief in sight and by August 6th, more than 63,000 fires had consumed more than 4 million acres. As the season progressed, much of the focus turned to Idaho and Montana where more than half the fires were burning.

Strong winds, enhanced by dry thunderstorms, contributed toward an increase in activity among existing fires. Although the number of thunderstorms was about the same as what would normally occur in a given year, a higher percentage of lightning strikes were igniting fires in the extremely dry environment. By late July, 500 marines were sent to

bolster fire fighting forces on the largest fire in the nation – the Clear Creek Fire. Believed to have been ignited by lightning in the Frank Church – River of No Return Wilderness area on July 8th , the fire smoldered in forest litter until it was discovered on Monday, the 10th. Driven by winds reaching up to 25 mph, it did not take long for this fire to grow. By July 14th, the fire had increased from around 1,000 to over 23,000 acres.

As crews worked to contain this fire, another burn was discovered approximately 5 miles to the north of Salmon. By July 16th the Fernster Fire, as it came to be known, had increased to about 3,500 acres in size. Due to active growth on its southern flank, resources were concentrated there in an effort to keep the fire from reaching the City of Salmon. As a result of this increased fire activity, air quality conditions started to degrade. By Monday the 17th, the 24-hour PM_{10} concentration had reached 89 $\mu g/m^3$. Over the next few days, progress would be made in controlling the fires as cooler temperatures, higher relative humidity and scattered showers set in. By Thursday, July 20th, the Fernster Fire had been contained and air quality levels had started to decrease. Although these showers helped in containment efforts, they did not have much of an impact on the long-term drought conditions. With extremely low fuel moisture, it was not long before fire activity would once again increase.

On Saturday, July 22nd, residents in Lemhi County could see columns of smoke rising from the Clear Creek Fire. Just three days later, the fire had grown to approximately 51,699 acres, making it the largest wildfire in the lower 48 states. Low relative humidity, gusty afternoon winds, dense smoke and extremely steep terrain kept fire activity high. Within a week, the fire had grown to 77,000 acres. In addition to fighting this fire, crews were busy trying to control other fires burning in the Salmon-Challis National Forest. Although most of these fires were small in comparison, they were still cause for concern as moderate fire behavior kept growth potential extremely high. This was especially true of those new starts created on the flanks of large fires like the Clear Creek.

Although there were brief breaks in the weather that allowed fire fighters to gain some ground in containing the burns, these were not enough to change the course of the season. Steep terrain, upslope flow and extremely dry vegetation kept conditions critical. Many fires had become large enough to have their own impact on local winds. In addition, downdrafts from passing thunderstorms were further enhanced by evaporative cooling as precipitation fell into the much dryer air below. On Friday, August 4th, scattered afternoon thunderstorms had created numerous lightning strikes but little rain over the Clear Creek area. The fire, which now burned about 12 miles from Salmon, had already grown to 101,900 acres. By August 6th, 10 lightning triggered fires had merged into seven larger ones, ranging in size from 3 to 863 acres. In addition, two spot fires resulting from lightning activity on the 4th, were discovered on the southern side of the Clear Creek Fire. These active hot spots created high plumes of smoke in the Clear Creek area due to dry conditions. As the fire continued to spread, air quality levels began to deteriorate even further. By August 7th, the 24-hour PM_{10} concentration at the School District Warehouse site had reached 118 $\mu g/m^3$. With no end in sight to the hot, dry weather and increasing fire activity throughout the region, the potential for serious

impacts upon the air quality in nearby communities continued to grow. To account for this, the sampling frequency at the Salmon hi-vol was increased from 1 in 6 to 1 in 1.

As the one-month anniversary of the Clear Creek Fire approached, conditions became even more hazardous. Passing thunderstorms created downdrafts that continued to threaten containment efforts. On August 15th, serious consideration was being given to closing the Frank Church-River of No Return Wilderness area due to extreme fire, limited access and thick smoke. Estimated to be 130,000 acres in size, the fire had jumped control lines due to strong gusty winds. PM_{10} levels in Salmon, which had been elevated since the beginning of the month, now reached concentrations in excess of 200 $\mu g/m^3$ with a value of 225 $\mu g/m^3$ being measured at the School District Warehouse on the 15th. By Thursday, August 17th, the final decision had been made to close off the entire wilderness area. Very smoky skies had not only made it difficult to fully assess the status of the nearby fires, but they had also made it difficult for any potential search-and-rescue operations. In addition to these restrictions, the public was being warned to stay inside, avoid strenuous outdoor activity, drink lots of fluids and cover air conditioners with filters.

With a thermal trough positioned over western Idaho, temperatures remained high. Although weak shortwaves continued to move across the region, there was very little in the way of moisture available to increase the chance for precipitation. Winds were light and from the south on the evening of the 17th. As a result, dispersion conditions were poor allowing smoke to build within the valley. Although cooler temperatures and increased westerly flow were forecasted for the next day, their impact upon the air quality remained uncertain. While under normal circumstances, these increased winds would have meant better mixing and improved air quality, they also had the potential of increasing fire activity. In the end, the benefit of the improved dispersion was outweighed by the overall increase in source strength.

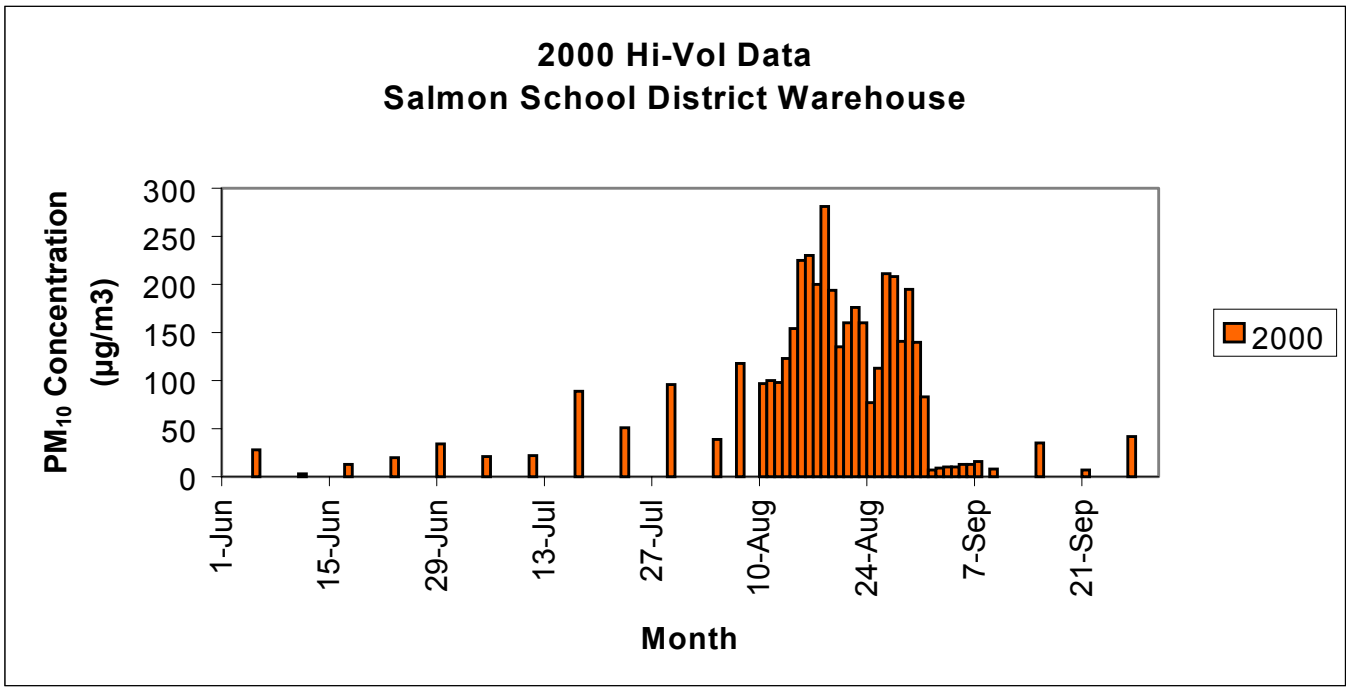
By August 18th, extreme behavior had been observed on the northwest perimeter of the Clear Creek Fire. With the thermal low and trough axis now lying across Lemhi County, isolated, dry thunderstorms posed a threat to fire fighting efforts. Having reached 147,081 acres in size, poor visibility and strong winds were hindering helicopter operations. Firefighters started building contingency lines as a precautionary measure to help protect the City of Salmon. The total number of acres, nationwide, consumed by the wildfires up to this point was more than twice the 10-year average. Although particulate levels would remain elevated throughout August, the maximum 24-hour concentration for the period would be reached on this day with a value of $281 \mu g/m^3$. As illustrated in Appendix A, satellite images show a significant amount of smoke being blown into the Lemhi Valley during the day by strong southerly to southwesterly flow. With cool temperatures and limited mixing often occurring during the morning hours, this smoke became trapped in the lower layers of the atmosphere. This pattern of increased fire activity throughout the day followed by stagnant conditions at night would continue throughout the rest of the month. As a result, unhealthy to potentially hazardous air quality conditions were expected to continue until the wildfire activity could be brought under control.

Until the end of August, the country's attention had been focused primarily on Idaho and Montana where more than half the wildfires were burning. Then the situation began to change as the first significant rain began to fall. This precipitation was not enough to end the season, but it was enough to allow fire fighters to start gaining control over the numerous blazes that had taken hold over the western states. Although PM_{10} levels remained elevated through the month of August, by September, the number of active fires had peaked at 86 and the relentlessly hot and dry weather had started to wane. The potentially hazardous impacts of these fires upon nearby communities, such as Salmon, began to ease as each day brought cooler temperatures, higher relative humidity, and more rain to the region. By October 10th, 1,578 fires had burned nearly 1.3 million acres in the state of Idaho. At the official end of the season, a total of 84,960 wild land fires had burned 6,966,995 acres across the United States. The ten-year averages (taken from 1990-1999) were 106,393 and 3,786,411 respectively. Media accounts of the toll taken on communities like Salmon can be found in Appendix B of this document.

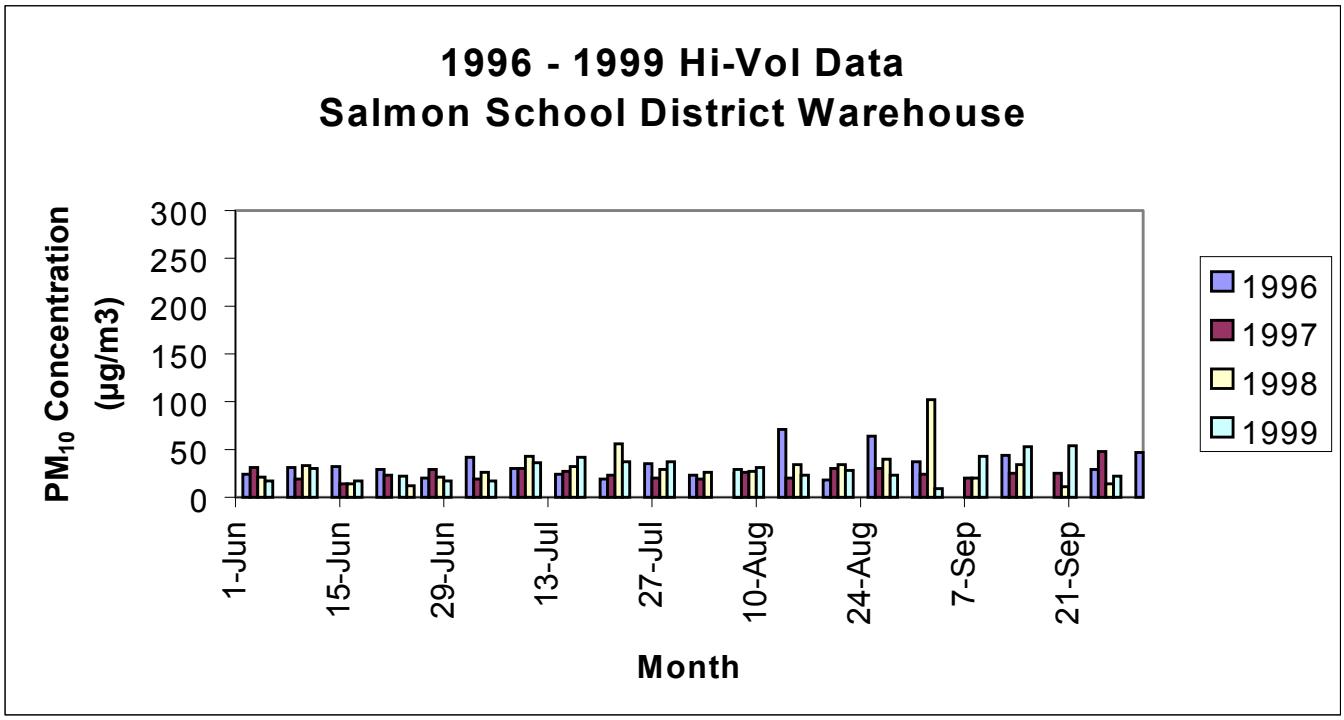
SUMMARY:

As previously mentioned, elevated PM_{10} levels in Salmon are usually associated with strong wintertime inversions. During the summer months, however, increased mixing combined with reduced source strength, typically help to keep air quality levels within the good range. The early portion of the summer of 2000 was no exception to this usual pattern of events. A comparison of Graphs 4 and 5, however, show that by late July this trend took a dramatic turn from what had been observed in the past. In the months leading up to the fires, PM_{10} levels were low. Once the fires started to grow, however, particulate concentrations began to rise. As the fires became more widespread and increased amounts of smoke were released into the atmosphere, air quality conditions began to approach unhealthy levels. By the end of August, 11 excursions of the 24-hour PM_{10} standard had been measured at the School District Warehouse. In addition, the only other time that levels had reached above 100 $\mu g/m^3$ during the summer months was back on September 2, 1998. The 24-hour PM_{10} concentration for this day was 102 $\mu g/m^3$. Upon evaluating the potential reasons for this past event, it is believed that a large fire, burning 40 miles to the west-northwest of Salmon at the time, may have contributed to this elevated concentration.

An evaluation of five year's worth of data for the Salmon area has shown the magnitude and duration of this summer's air pollution episode to be very different from any other in the past. This data also provides a rather vivid picture of the deterioration in Salmon's air quality during the time when fire activity was at its highest. As a result, it is believed that the aforementioned violations would not of occurred if it hadn't been for the widespread wildfires at the time. Due to the strong correlation between the two, and the uncontrollable nature of the fires themselves, the Idaho Department of Environmental Quality's (IDEQ) is requesting that the affected data be flagged under the provisions set forth in the U.S. Environmental Protection Agency's (EPA) Natural Event Policy.



Graph 4. Hi-vol data from the Salmon School District Warehouse for June 2000 through September 2000.



Graph 5. Hi-vol data from the Salmon School District Warehouse for June 1996 through September 1999.

APPENDIX A:
SATELLITE IMAGES OF THE IDAHO FIRES AUGUST 16TH - AUGUST 18TH

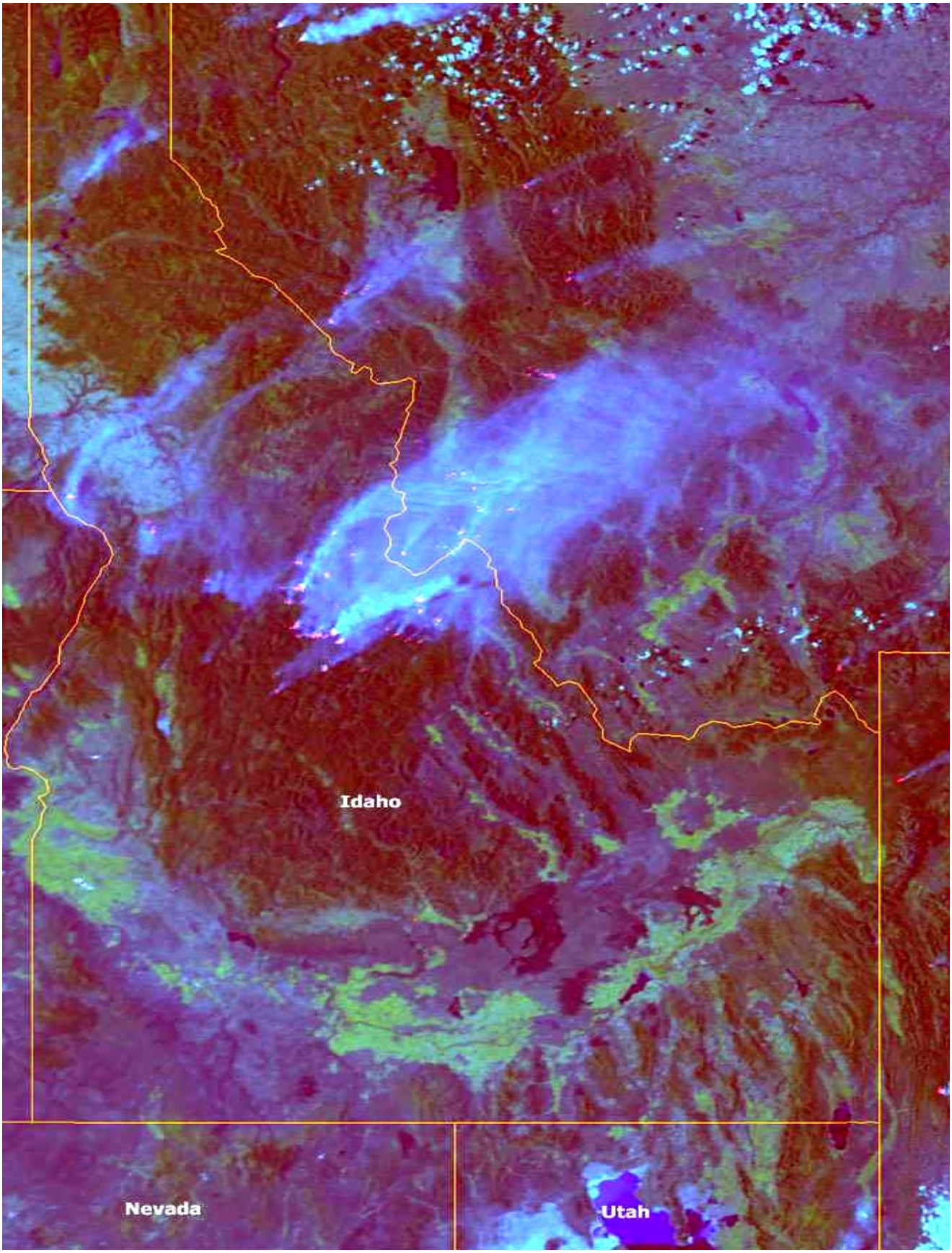


Image 1. Satellite image of smoke plumes taken on August 16, 2000.

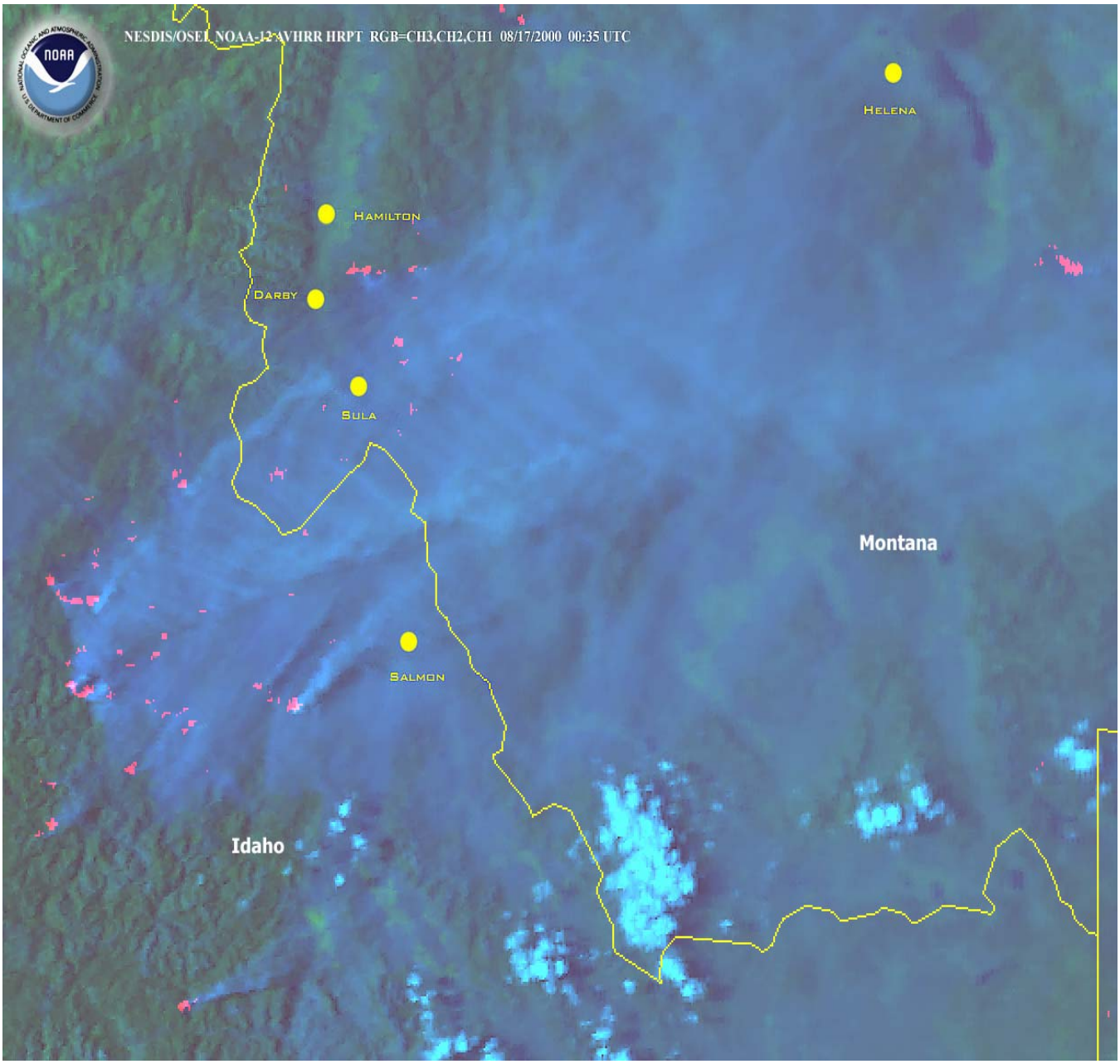


Image 2. Satellite image of smoke taken on August 17, 2000. Heat signatures (red) and dense smoke (blue) are visible from many of the fires burning in Idaho and western Montana. The ribbed effect in the smoke may be due to inversions causing the smoke to follow the mountain valley terrain.

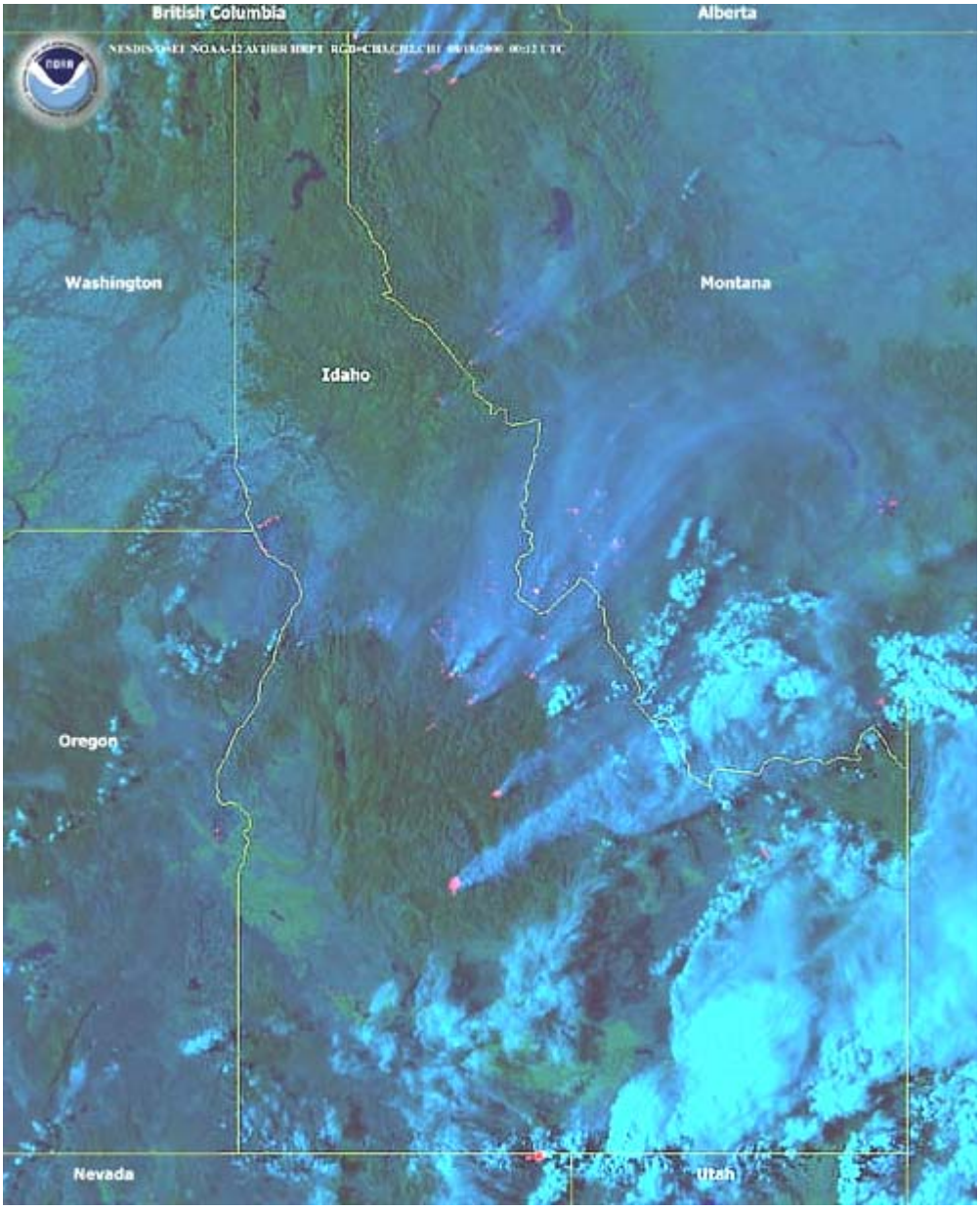


Image 3. Smoke plumes (blue) and heat signatures (red) taken on August 18, 2000 of Idaho fires.

APPENDIX B:
MEDIA REPORTS OF THE IMPACTS OF NEARBY WILDFIRES ON SALMON, IDAHO

Figure 1. Article from the Rexburg Standard Journal. August 18, 2000.

Lightning-caused blazes pop up everywhere

By The Associated Press and The SJ Newspapers staff

Fires continue to plague Yellowstone and Grand Teton National Parks as well as other areas throughout the West.

The South Entrance road to Yellowstone National Park remains closed due to fire activity outside the park. And the Bridger-Teton Wilderness area is closed to all activity.

The 3,200 acre Glade fire is burning in the Teton Park 12 miles north of Colter Bay, Wyo. Evacuation of Flagg Ranch Lodge and campground and residences has been completed. There is no estimate of containment. There are 121 firefighters assigned to the scene. The fire increased from 750 acres Thursday because of a lightning storm and strong winds.

There also is a 2,100 acre fire burning in the Teton Park west of Jackson Lake. One structure was lost, and there is no estimate of containment. There are 12 people assigned to the fire.

Yellowstone National Park officials reported no new fire starts in the park Thursday.

A barricade, located south of Grant Village, allows park visitors staying at the Lewis Lake Campground to travel to the campground from the north, but no farther.

The Moose fire, located near Moose Creek south of Shoshone Lake, is estimated at 527 acres. It is unstaffed but being actively monitored and mapped on a daily basis.

The Unlucky Fire, located in the southwestern portion of the park in the Bechler area, is estimated to be around 1,490 acres. It is unstaffed.

Yellowstone fire crews are assisting with fires in Montana and areas surrounding the park. These fires have the potential to affect human safety or damage manmade structures. Fires in Yellowstone Park are located in remote backcountry areas and are not threatening any developed areas at this time, according to a news release from the park. Some backcountry trails are closed because of fire activity.

Because of the extreme fire danger with continuing hot and dry conditions, no wood or charcoal fires will be allowed at many campsites beginning Saturday.

Among the new fires in Idaho is a 21,000 acre complex is burning on the Salmon-Challis National Forest. It consists of the North Fork Wilderness and South Zone Wilderness Complex, 40 miles northwest of Salmon. There is no estimate of containment. There are 21 people assigned to the fire.

Air quality conditions have reached very unhealthful and potentially hazardous air quality levels in the Salmon area, according to a news release from the Department of Environmental Quality. Under these conditions, there is a significant increase in respiratory symptoms in children and adults, aggravation of heart or lung disease and premature mortality in persons with cardiopulmonary disease and the elderly. People with respiratory or heart disease should avoid any outdoor activity. Everyone else should avoid prolonged exertion.

There is a 1,500 acre fire burning on Upper Snake District, Eastern Idaho Area land, 4 miles west of Hamer. A total of 37 people are assigned to the fire, and 30 percent of the work has been completed to contain the fire.

As flames continued blackening much of the West on Friday, Interior Secretary Bruce Babbitt said money and manpower were no longer the issue in America's battle against scores of wildfires.

"The infrastructure for firefighting is in place for the next 30 days," Babbitt said after meeting with top strategists and managers at the nation's wildfire command center in Boise. "People watching from 3,000 miles away can't do it for them," Babbitt said. "We've got to give them the space to make those decisions and provide them the support. The issue is how we effectively use the trained resources we have."

Nearly 19,000 civilian and military firefighters were spread throughout the West on Friday, 14,000 of them in Montana, Idaho and Wyoming where active fire was burning on more than 1 million acres.

Babbitt left the National Interagency Fire Center after the top-level briefing for the fire lines in Montana and Wyoming. "It's a very tough situation," he said. "We've got two, three more weeks, maybe a month of fire season, and the weather prognosis is not very good."

He said governors throughout the region had been receptive to his request that state colleges and universities delay registration deadlines to Sept. 15 so college firefighters, accounting for a quarter to a third of the manpower in the field, can remain on the lines. Montana and Idaho have already done that.

"It's time to spread the word in the fire camps that we're going to encourage all college students tostay on and we will be responsible Westwide, maybe nationwide; that they are not penalized," Babbitt said. "We have a maximum effort going. We're going to do everything to keep the resources out in the field."

In what was developing as one of the worst wildfire seasons in decades, more than 5 million acres nationwide has already burned. Babbitt declined to estimate the cost, which at the end of July was put at $15 million a day.

The priorities remain firefighter safety and community protection, he said, declining to speculate on any policy changes that may be made to avoid the same kind of fire bust in future years.

"There's going to be lots of time after September 15 to reflect on lessons learned," he said.

Experts from Australia, New Zealand and Canada have joined the campaign, augmenting the crew supervisory corps to maximize available manpower.

But local people were also turning out to backup trained firefighter. Hundreds of Grangeville residents, many loggers and construction workers, were getting special training in the basement of the Elks Temple in case nearby fires begin moving on their west-central Idaho community.

"These people live here and are breathing this smoke every day," Nez Perce National Forest Supervisor Coy Jemmett said. "Folks are really concerned."

Over 4,000 firefighters manned the lines of two dozen wildfires burning on more than 400,000 acres, mostly in the central Idaho mountains. The 2.4 million-acre Frank Church-River of No Return Wilderness was closed to the public earlier in the week as were the renowned whitewater rafting rivers of the main Salmon and Middle Fork of the Salmon. Only days before the closure, flames from one blaze chased a guide and his clients off the main Salmon.

"The fire was so big it was creating its own weather," guide Thad Hosner said. "The wind was coming from every direction, hot and cold, and the fire was sucking it right up the gully, feeding itself."

Friday, a statewide ban on campfires was extended to include campfires in established campgrounds. Only gas stoves can be used by campers.

The 147,000-acre Clear Creek fire, the nation's largest along the Salmon River near the Montana border was burning actively on the north flank due to high winds. Fire crews labored to keep it away from a Girl Scout camp and the watershed for the city of Salmon.

Figure 2. Article from the Recorder Herald. August 24, 2000.

GOVERNOR DIRK KEMPTHORNE presented Andy Burke with an air cleaner Monday. Andy is the 9-year-old son of Bill an Patti Burke. Because of his asthma condition, and the smoke filled valley, he has spent the last three weeks in Idaho City. With school due to start next week he returned home to see if he can tolerate the air. With help from the air cleaner he may be able to return to school with his classmates.

Governor delivers donated airfilters

by Leslie Shumate

For the second time this month an Idaho Air National Guard helicopter brought Gov. Dirk Kemp-thorne to Salmon on an issue of hazardous air quality caused by smoke from surrounding forest fires.

The governor's Monday afternoon visit was in response to a call from Salmon City Mayor Stan Davis who had also contacted the Red Cross concerning a need for devices to clean smoke from the air being breathed by residents already at risk due to health problems. Sears donated 25 air cleaners to the Red Cross in answer to the need and the governor personally delivered them to Salmon and Challis.

At the Salmon Airport he and state emergency officials were greeted by a large group including the Mayor, the County Commissioners. District Seven Health Department personnel Steve Adams and Registered Nurse Melba Baker. Disaster Services Director Jack Weiggand along with local Red Cross representatives Phyllis Rose and Kathy and Matt Highree.

Air filtration devices plus 20 Sears air cleaning units were given to this area along with five air cleaning units that were taken to Challis. Kempthorne expressed thanks and gave credit to the Sears Company for their generous donation. He recommended the establishment of clean rooms within the community. A local task force will identify the greatest needs and most strategic locations for installation of the units.

Local health officials had already chosen one location for a donated air cleaner and that was the home of Ardelle and Joe Demick. The governor personally delivered the unit to Ardelle who suffers from a respiratory condition that makes her dependent on an oxygen system and who is also recovering from a broken hip.

At an impromptu meeting in Steele Memorial Hospital's classroom John Cline, state director of disaster services, said he has talked with the Army Corps of Engineers about their experience in devising air intake filtration systems on buildings and he said the Corps is willing to help. Cline said methods similar to those used in asbestos removal could be implemented and would help indoor air quality dramatically. The Corps will meet with Jack Wiegand, Disaster Services Area Field Officer Mike Clements and local officials to identify the critical need buildings.

The 50-year-old hospital is without air conditioning and during last Friday's Stage IV air quality alert staff members went in search of fans. They found only three to purchase.

Other buildings of critical concern are the schools. School is starting soon and the Salmon High

(See Filters Page 3)

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(Continued from Page 1)

School is the only facility with air conditioning. School District No. 291 Superintendent Dr. Candis Donicht told the governor. "One of our biggest concerns is that there does not seem to be a standard measurement for what's an allowable range for children." She said her primary objective is to be able to assure students, their parents and school employees that they are in a safe environment.

Steve Allred, director of the Department of Environmental Quality, told the group several agencies are meeting trying to figure out how to deal with air quality problems. His department has just installed a new state of the art fast take instrument in Salmon that will give real data on outdoor air quality and help residents determine appropriate measures for given conditions. He said the department is making the information available on a daily basis to local medical personnel and news media. Allred said another job of the department is to gather data for long range weather trends. "Unhappily our forecasts are, we don't see a break in this for 30 days."

Prior to instrumentation and according to the Department of Environmental Quality's visibility oriented guide, the Salmon area has been in a constant state of from very unhealthy air to hazardous conditions since shortly after the fires began over a month ago. Steele Memorial's Director of Patient Services Charlotte Rawlins said effects from the smoke will be seen from now on in patients already predisposed to chronic obstructive pulmonary diseases such as asthma and emphysema. She predicted the added damage to already weakened patients may lower their resistance even further resulting in more cases of phenomena and bronc[illegible]s this winter.

The welcome assistance provided to the community Monday is in keeping with the statewide Emergency Declaration issued by the governor July 27. The 30 day declaration, that the governor said will in all likelihood be extended, allows local government officials to call on and have access to state emergency services.

Last Friday Gov. Kempthorne issued an Emergency Ag Declaration that will allow agriculture communities additional resources to offset losses being experienced from burned grazing allotments and allotment closures as well as the actual loss of livestock. The governor has also met with representatives for the Idaho Outfitters and Guides Association about the forest fire impacts on rafting and hunting permits and he said permits drawn in lotteries will be grandfathered and deferred until next year.

Kempthorne, in addition, has spoken to President Clinton about the importance of moving aggressively forward on salvage operations. "There's value in that timber, value in getting rid of some of the fuel load and value to small communities."

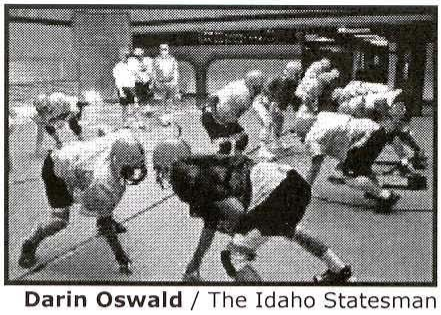
The governor stopped at the Salmon-Challis National Forest headquarters on his way to the airport and flight to Challis to look at the day's fire location maps that, on Monday, were showing 158,873 acres burning in the Clear Creek fire

Figure 3. Article from the Idaho Statesman.

Blazes stressed lives, livelihoods

Smoke, flames blackened skies, outlooks but couldn't keep communities down long

By Tim Woodward
The Idaho Statesman

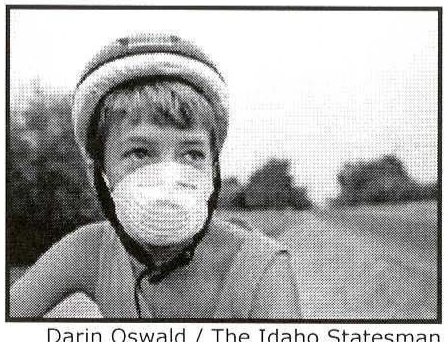


Darin Oswald / The Idaho Statesman
Unhealthy levels of smoke in the air from forest fires forced Salmon High School's football and cross country track teams to practice indoors in August.

In towns that suffered the most with Idaho on fire this summer, it was easy to get the feeling that the flames were burning more than forests and rangeland. They were threatening longstanding ways of life.

In Salmon, smoke from the Clear Creek Fire was so thick that Life Flight medical helicopters couldn't land. There were times when it was difficult to see across Main Street. At North Fork, a wide spot in the road 20 minutes north of Salmon, the smoke and ash were so thick people used flashlights to get around in the middle of the day.

At Salmon's Steele Memorial Hospital, a third of the emergency room patients were smoke inhalation victims. Stores sold out of Visine and air-filter masks. In a gesture that may have helped morale more than the general health, Gov. Dirk Kempthorne personally delivered air purifiers to those suffering from respiratory problems.



Darin Oswald / The Idaho Statesman
Brandon Stephanishen, 11, who has asthma, wears a filter while riding his bicycle down a street in Salmon to protect him from smoke-filled air.

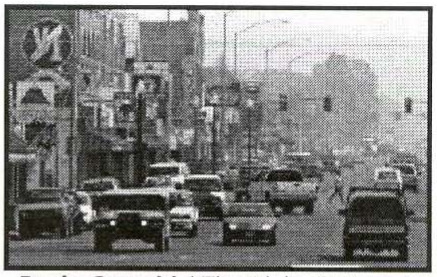
The smoky air forced the high school football team to practice indoors.

It was a curious sight, boys in pads and helmets trying not to fall and hurt themselves doing contact drills on the lunchroom floor. In the gym, receivers went out for passes and collided with bleachers. The players made the best of it but worried about being

at a disadvantage against opponents who lived in towns with clean air and could practice normally.

The high school's cross-country coach was thinking of canceling the season.

Fearing for their health, some Salmon parents sent their children to stay with friends or relatives in other states until the air cleared. Playgrounds normally teeming with children were eerily vacant. An 11-year-old with asthma, wearing a face mask as he pedaled his bicycle down Main Street, provided a poignant image of a city under siege.



Darin Oswald / The Idaho Statesman

No community in Idaho suffered more from the 2000 summer fires than Salmon. This central Idaho town of 2,500 lived under a shroud of smoke for more than two months. Like many communities this year, Salmon lost important tourism dollars from the smoke and the closing of the Frank Church River of No Return Wilderness.

Fearing the loss of business

Salmon, of course, is no stranger to adversity. It's a logging town that has lost its logs, a mining town that has lost its mines, a tourist town that fears the loss of its tourists. The fire closed rivers, forcing outfitters to refund thousands on canceled trips. It almost closed the hunting season.

With the flames burning 12 miles away, a clerk at a Main Street business that had survived 97 years fretted that this could be the last.

The longtime owner of a sporting- goods store worried that the decline of tourism could kill Salmon.

A waitress at a downtown cafe predicted that within three months, Salmon the tourist town would be a ghost town.

People were depressed, anxious, pessimistic. It was as if the smoke that at times blocked the sun also had cast a psychological pall that attacked the town's spirit. A local psychologist said that Salmon during the fiery summer of 2000 reminded her of Alaska during the Exxon Valdez oil spill. The sense of collective depression was almost palpable.

Coming through strong

Obscured in the gloom, however, was a bedrock fact: Salmon is a tough town in a state filled with tough people. Idahoans have never given up easily, and not even the biggest fires in the state's history were enough to make them start.

Seven weeks after Salmon High School's football team was practicing in the lunchroom and worrying about a ruined season, the Savages were 6-0.

"We're doing great," coach Dustin Hunt said. "We've scored 300 points in six games.

"The boys were kind of upset that we had to practice indoors, but we got that miracle rain we were hoping for and only had to practice inside for about two weeks. They were pretty depressed at first. In addition to being sick from breathing smoke, they were sick of not being able to see their mountains. I kept telling them this was just another problem, that we could get through it, and we did.

"I think it was a good test for the kids to get a little adversity right off at the beginning of the season. It makes for a good team when they can go through adversity and turn it into a positive, and these kids are the type that can make anything seem positive," he said.

Far from canceling its season, the cross country team is contending for the district championship. And at Salmon's beleaguered downtown businesses, things are, if not booming, better than expected.

"It's slow, but it's not a ghost town," said Lloyd Tutor, owner of the Salmon River Inn Coffee Shop. "They only shut down one area for hunting, so we didn't lose the season after all. The fire killed some of the elk and deer, but the rest have moved down to the lower country. If a hunter's really a hunter, he could probably come in here and do pretty good.

"We haven't seen a lot of fishermen yet, but the survival rate at sea has been good. They're predicting the best salmon and steelhead season in years."

All the businesses that were open during the fire remain open today. Sales at the coffee shop were off 20 percent for the summer, Tutor said, but he looks for things to improve.

"It's still on the slow side, and there's still some pessimism, but no one I know of is planning to shut down. I think things will pick up in the spring.

"This town has survived a lot. It survived the sawmills closing and the mines closing, and hopefully the tourists will come back. When they do, we'll be here."

The remnants of fire

The 216,000-acre Clear Creek Fire, Idaho's largest, never came close enough to Salmon to threaten homes. Atlanta, in central Idaho, wasn't as fortunate.

There, the Trail Creek Fire burned a home, several cabins and some storage buildings on the edge of town. Singer-musician Curtis Stigers, who spends parts of his summers in Atlanta, likened the fire to a volcano and "a KISS concert with pyrotechnic cannons."

Karen Sayko, who has spent the last 21 years in Atlanta, looked out her back door at 5:30 a.m. on a fiery August dawn and didn't know whether she'd still be there at 6 a.m. Most residents stayed till the last minute to hose down their homes, then evacuated.

Now, Sayko said, things are "back to normal, or at least what passes for normal in Atlanta."

Fire rehab workers left in mid-October, their work finished. By then, hunters had returned to the hills, reviving the local economy.

Dick Forney plans to rebuild the Atlanta home he lost to the flames.

"It'll probably take me a couple of years, but it's worth it," he said. "You get attached to a place like this."

Laura Mather, who has spent the last four years in Atlanta, also is building a home.

"The trusses were lying on the ground when the fire came," she said. "They were either going on my house or going up in smoke. I'm glad they're going on my house."

With the fire raging, did she even briefly consider building elsewhere?

"No, because I love it here. I wouldn't think of building anywhere else. This is home."

North of Mountain Home, the Oregon Trail Fire burned almost to Lois Davison's door. Davison owns the Tollgate Diner on U.S. 20. The fire stopped on the other side of the highway. She could throw a rock from her front door to the approaching flames but didn't consider leaving until the authorities gave her no choice.

"It was coming my way, but as long as the wind was at my back, I wasn't too worried," she said. "The sheriff's department asked me to leave, but I came back the next day."

The thought of leaving for good never entered her mind.

"I'm too stubborn to let a fire force me out," she said. "Fires can happen anywhere. They're part of life."

APPENDIX C:
ADDITIONAL PHOTOGRAPHS OF FIRE ACTIVITY NEAR SALMON, IDAHO DURING THE SUMMER OF 2000

Photographs 3 and 4: Clear Creek Fire. July 27, 2000.

Photographs 5 and 6: Clear Creek Fire July 27, 2000